

NOTICES TO CORRESPONDENTS.

The *Mining Journal* is regularly published about Two o'clock on Saturday afternoon, at the office, No. 3, FLEET STREET, where it can always be obtained and there is no room for irregularity in the supply, or loss, other than caused by the part of the agent through whom it is ordered; but, as respects its transmission to country subscribers, the blame is shared with the Post-office authorities.

We have received an important communication from Mr. Ryan, in explanation of his system of Ventilating Coal Mines, which will appear in next week's *Journal*—also with the continuation of Mr. H. Dene's interesting paper on the History and Progress of Colliery Engineering.

Mr. J. Clark has addressed us a letter, in which he states, that, being perfectly satisfied as to the identity of "Z. E. D." he declines pursuing the discussion further. We cannot, however, see what the identity of the writer has to do with the question at issue.

Mr. H. M. (Bentley).—Descriptive particulars of the Atmospheric Railway have already appeared in the *Mining Journal*, but we shall have occasion shortly to revert to the subject, when we will bear the subject of our correspondent's note in mind.

Mr. T. W. B. (London).—Burst to the editor, Corfield, Lancashire.

Mr. F. (Birkenhead) should apply to a local subscriber, who will readily give him the information he seeks.

Mr. G. (Birmingham).—The original of our correspondent shall be attended to.

Mr. G. (Birmingham).—A shareholder in the Bristol and Gloucester Railway—"An Operator" (London)—Mr. R. Roffe (Gloucester), on Preexisting Accidents to Miners, also

Mr. Gandy's Literary and Scientific Register and Annual, for 1845.

The Second Part of Mr. Montgomery Martin's Industrial Before and After the Union with Great Britain—that book has not come to hand, at the work in use we can hardly afford to notice.

Mr. Charnock's New Lancashire Canal, for Agricultural Communication with India.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, DECEMBER 23, 1843.

"—*Advertisement* of the *Mining Journal*, may do, either direct to the office, or through any agent, or to any person in town or country. Notices of complaint in its ordinary course are requested to be forwarded to the office, where every subscriber will be made to satisfy the cause of complaint.

The approaching eve of Christmas, and termination of the year, and, with that, our concluding Number of the present volume, calls from us the expression of a duty we owe our subscribers and correspondents for the support we have received, more especially from the latter, during the past twelve months. The increasing interest manifested on the several subjects forming matter of discussion at the present moment, added to those which have taken precedence in our columns, at once assure us of the advance we are making in the estimation of the man of science and the practical miner. Whether we look east, west, north, or south, we find the valuable contributions of parties, who feel with us that the *Mining Journal* is a legitimate medium through which they can convey their ideas and the result of their observation, while they derive that information which reciprocity of feeling insulates and contributes. To "one and all" (to adopt the Cornish motto to our feelings), we have only to say, "We wish you a merry Christmas and a happy new year."

We have hitherto carefully abstained from offering any remarks on the "strike" of the colliers generally, and the consciousness which might be apprehended from a stubbornness being observed on their part—while we indulged in the hope that amicable arrangements, mutual forbearance under circumstances, and, further, mutual concessions on the part of the employer and the employed, would ere this have taken place, and that we should thus have been relieved from the irksome duty, otherwise imposed, of directing attention to a master which, we regret to say, is no longer local, but would appear to be extending itself throughout the whole of the colliery districts. "Union" is desirable where injustice exists, and "might" would overcome right, where power is employed to trample upon justice or where money is brought forward not on an equality with labour—which master should ever meet with protection, and assume its proper head. While we, you, however, apply to all this, there is such a thing as combination—a combination put up by interested parties—by paid delegates and officers—who, possessing some little education, avail themselves of that power of misguiding and misdirecting the honest working collier, who from his childhood has been taught to labour, first for the support of his parents, next his wife and children, and who, perhaps, never half a dozen miles from his home, may be said to be an isolated being, content with his lot, until falsehoods are thrown about, and excitement prevails—he, with honest feeling and indignation, when roused by a sense of supposed wrongs, readily falling into the snare prepared by those who look only to the advancement of their own interests, and insatiable and rapacious, as they are, of the injury inflicted on others.

In making these remarks, let it not be supposed for one moment that we are insensible to the state of the working collier—to the want of care and attention on the part of the colliery proprietor, whether with regard to the safety of his life, or the protection which, in case of accident, is to those bound—those Christian duty to afford to the widow and orphan. One column of the past few weeks, testing, as they have done, with the results of inquiries as regards accidents (in most instances the surviving members of the families being left totally unprovided for), demonstrates too strongly how much concern the colliery owner is subjected to, for not establishing a society to which the aged and dimpled could look for support. Let, then, the coalhouse, whether the proprietor of the soil, or those who work it, come forward and establish a fund for the relief of those who have to deplore the loss of their natural protectress—and it would excite a general feeling and spirit on the master who would, under such circumstances, look up to his employer as one of those whom, in case of death, he might consider the greatest of his helpless children. But such is not now the case.

The collier is yet to work with ingenuity and useful tools—he is used to work in places where his or who's damage is known to exist, without that protection which the safety lamp would afford—he is dependent on the master or his agents—he cannot complain—and hence the pit is put forward among the mass, that it is time to throw off the yoke. Willingly—yes, more willingly—should they leave us and, so far, and deeply feel, for the position of the working collier; we know full well the toll, the drudge, which he undergoes, and, were the question confined to this, we would—eye, hand and soul—hand over his old to ameliorate his condition—as evidence of which, we have already expressed our opinion of addressing the Marquis of Bute, as well as the House of Parliament; but, we ought to say, this is not the end of which complaint is made—this may form a valuable adjunct, but the movement must be of another character, and with another object—and, if it be not put down, we can hardly well comprehend the consequences which must result.

A correspondent, whose name appears in another column, has furnished us with a printed paper, entitled "Appendix to the Month of Grace to the Marquis of North Staffordshire," and which, we are glad to understand, has been generally circulated. It bears date

"January, 1843. Discussion," and is signed "By order of the Delegates Meeting." We propose taking a brief notice of this address, which we do not know the name of the author; its language is not of that straightforward sense calculated to effect its object, & addressed to the master who possesses a mind to think for himself, while it offends, in our opinion, common sense to suppose that the object is made to effect. We will follow it through, although our space will not permit of entering at length on the collective statements of all persons you birth; and we only regret that we possess not the

channel of communication which is secured to the delegates, of which affords shelter to his wife and children; and, while he labours with his body, let his mind be unimpeded, and grateful to his Creator for the means afforded him of substance, however poor they may be. We repeat, in conclusion, that we are all indebted to each other for the means afforded us of passing through life. Some may boast of fortunes acquired by the hard earnings of their forefathers—and we might adduce many illustrious examples of our own times, of advancement being acquired by the strict and vigilant performance of our duties, no matter in what station of life we are placed. We have each our duty to perform; let us endeavour to do so, and not be misled by the selfish views of agitators, or the demoralising characteristics displayed by such men, who, as delegates, profess their regard for those on whom, like the vampire, they seek to live.

The concluding part of the "Appendix to the Month of Grace" shall receive further notice in our next.

We last week offered some remarks on the law report of the cause TYLER v. WOOLLETT, which appeared in our columns, with reference to the responsibility of directors; and, in again advertizing to the subject, we feel that other arguments apply, and that the case of THOMAS S. TANCRED (also inserted, but on which space did not admit of notice) presents somewhat different features. We shall briefly remark upon them; and, as the question is one of importance, we purpose getting counsel's opinion, which we shall readily afford to our readers—for the point is one which requires the decision of the judges, and cannot, we think, be considered as determined by the verdict given.

We can imagine a jury being unanimous in their decision, that a tradesman should not be sundered by the misconduct or want of caution of parties who put themselves forward as directors of companies—and, as we have no doubt, in the present instance, such was the case with the defendant, who allowed himself to be nominated—and, further, acted—as a director of the "London Joint-Stock Trades' Company;" but there is such a thing known in this country as law and justice—which do not always go together. The simple facts of the case may thus be stated.—The defendant having acted as a director, his name appearing on the prospectus, withdrew from the company in January, 1839, when he addressed a letter to such effect; but the dissolution of the company not having taken place until the month of August following, it was contended, on the part of the plaintiff, that he was responsible for all debts or liabilities contracted, no matter at what period—while it appeared, from the defence, that the debt on which the action was brought was made at a time when the defendant was no longer a director or partner.

We do not propose entering on the subject this week at length, but if this decision be law, we can imagine the value which will be attached to odd prospectuses. We are, however, well pleased that such a verdict has been given—for, if we mistake not, it will make "folks look about them," and that some measure will be adopted, which, while it protects the public, will, at the same time, be a service to those who take upon themselves the office of directors.

INCREASE IN THE GOLD PRODUCE OF RUSSIA.

According to the last intelligence from Siberia, the enterprise of gold washing has extended itself from the eastern side of the Ural Mountains to the Altai, and layers of gold sand have been found to extend along the Chinese frontier over a space of 80,000 square miles, of which the 200th part in the Ural district alone furnishes an average of 300 pounds (the pound is 22½ lbs.) a year—equal to 15,000,000 of paper rubles. Prof. Hoffmann has observed, that the masses of granite, hitherto deemed barren, of which this chain of mountains is composed, contain gold. In order to keep up, in some measure, the price of this metal, Gen. Canderis has decreed it admissible to raise the tax to 10 per cent., and sees that it will be necessary to claim the Crown's right to the fifth part of the produce, amounting last year to 1000 pounds in Mount Altai. Should the hopes at present entertained be realized, and no unforeseen events take place, this sudden increase in the quantity of gold will affect the value of the precious metals equal to the discovery of America, or the introduction of the amalgam of quicksilver.

THE RAILWAY MEETINGS OF THE WEEK.

LONDON AND CROYDON RAILWAY.—Another special meeting of the proprietors of this company has taken place, the object being the consideration of the extension of the line to Epsom. The chairman, in the course of his address, adverted to the projected branch of the South-Western Railway Company, and the consequent opposition which they might thus encounter in Parliament. It was true (he observed) that, while the cost of the London and Croydon line to reach Epsom would be 170,000*l.*, and that of the South-Western Railway would be no more than 50,000*l.*, yet that the net return would on the former, by the present traffic, making the ordinary allowances for increase by way of railway, be equal to upwards of 10 per cent., on the capital invested.—The motion submitted, that application to Parliament should be made, was carried unanimously.—The meeting then proceeded to discuss the position of the company, with reference to the Greenwich Railway Company. From this we gather that the Croydon proposed to pay 3*l.*, 2*l.*, and 1*l.**d.*, on every passenger brought to London bridge, engaging also that the charge to Croydon should not exceed 1*l.* 6*s.*—third-class 1*l.*. To this the Greenwich directors assented, but coupled it with certain conditions that rendered the terms unsatisfactory. The Greenwich Company have, however, since offered to abandon the conditions they wished to impose, provided the Croydon would pay 2*l.*, 1*l.**d.*, and 1*l.**d.*—and thus the matter stands; the directors of the latter contending that they would be sacrificing the interests of their constituents, at a time when the Blackheath Arms branch was so near completion, did they comply.

Plymouth and Exeter Railway.—A special general meeting of the shareholders in this company was held on Wednesday, the 23rd inst., when a proposition was submitted, on the part of the directors, that 600,000*l.*, being one-half the required capital for forming the Plymouth and Exeter line, should be subscribed by this company, the remainder being in the following proportions—Great Western Company, 130,000*l.*; Bristol and Gloucester Company, 10,000*l.*; and the remaining 460,000*l.* being raised by public subscription—it having been fixed, that with the proposed addition of 200,000*l.* on the part of the Bristol and Exeter Company, the sum could not be carried out, from the absence of support on the part of the Plymouthians and the public. The meeting was very fully attended, and an opposition to the proposal was manifested on the part of many proprietors, terminating in a large majority against the proposition of the directors, which was accordingly withdrawn. We do not offer an opinion on the proceedings, which, we regret to say, were of an exciting nature. In cases like these, we think it would be more prudent if the views of the principal proprietors were well canvassed. The result will be a severe blow to the proposed Plymouth and Exeter line; and those who would, in the end, have benefited by the construction, have only themselves to thank, for their negligence in not carrying out a desirable measure.

THE YORK RAILWAY.—A meeting of the directors and shareholders of this company took place on the 23rd inst., for the purpose of revising the report of the committee on the proposed agreement between the Marquis of Bute and the company, from which it appeared that the committee appointed for the purpose of negotiating had been unable to bring their business to a close, and requested further time for the purpose of considering their report.—Mr. Croxley submitted a motion to the effect, that the proposed agreement for raising the funds of the Marquis of Bute be deferred, and that a committee be appointed to meet certain persons connected with the Gloucestershire Canal Company, with the view to an amalgamation of the Taff Vale Railway with that company; the object being, further, that the several parties having strengthened forces, should then negotiate with the Marquis of Bute for raising his stock by the joint proprietors. Mr. Cook expressed his opinion, that if such proposition were carried out, it would create a return of 3 per cent., on the investment.—In the end, it was determined that a committee of persons representing the several railway should be held, when, it was understood, a representative of the Marquis of Bute would be present; and, with this understanding, the meeting adjourned.

RAILWAY AND COMMERCIAL GAZETTE

WATER-POWER OF IRELAND.

At the meeting of the Cavanian Society, on the 1st of November last, held at the Royal Cork Institution, Mr. H. Honan read a paper "On the Water-Power of Ireland," in which he showed that the total quantity of water which falls on the surface, and the mean elevation of such land above the level of the sea, are good data for estimating the mechanical power of its streams and rivers, subject to some modifications in the calculations. Meteorological observations have been taken in six different parts of Ireland, from which it appears that the mean depth of water falling in one year was 33.46 inches; multiply this by the area of the country, and the product is the whole quantity annually falling on the surface, but, to allow for evaporation, and what falls in situations where it cannot be made available, and from other considerations affecting the supply, the author considers that one-fifth should be deducted, to give the amount actually available for machinery. The surface of Ireland is 20,395,500 acres, which, multiplied by four-fifths of the fall of rain, gives a quantity of water applicable to motive-power of 1,982,139,286,562 cubic feet; the mean height of the land is then taken at 360 feet, in which height forty overshot water-wheels of ten foot diameter could work 374 cubic feet—or about 235 millions of water per minute on one such wheel would generate 1-horse power, and as there are 325,560 minutes in a year, the case stands thus— $1,982,139,286,562 \times 40 = 325,560 \times 37.5 = 4,615,320$, above 4 millions of horse-power per annum. This immense extent of power can never, perhaps, be required, and the surplus water could be easily conducted away for chemical and manufacturing purposes, many of the streams being of the purest water, flowing over carboniferous limestone—the most general strata in Irish geology, and are known to be eminently fit for all purposes requiring a freedom from metallic or gaseous impregnation.

THE SCREW PROPELLER—STEAM NAVIGATION.

At the last meeting of the Liverpool Polytechnic Society, the president (John Grantham, Esq., C.E.) in the course of his annual address, said, that, finding he had but few observations to make on the state and prospects of the society—as ever had been the tenor of its way through all the changing scenes of the times—he should introduce to their notice a topic of public interest, suited to the character of their meetings—the subject he alluded to was the present state of steam navigation. After some introductory observations, as to the failure of the science as a profitable mercantile speculation, he called their attention to the screw propeller, as a substitute for paddle-wheels—an improvement which he had great hopes would much add to steam navigation on a firmer foundation. Several short notices of the screw propeller had appeared in scientific publications (see *Mining Journal* of the 10th October, for a detailed description, with diagram). But they were very imperfect, and little could be gleaned from them. It had, however, been referred to more satisfactorily in a paper written by Mr. Elijah Galloway, the patentee of paddle-wheels, in an appendix to Tredgold's work on the steam-engine. But the author had not formed a decided opinion on the question, and did not establish its superiority. The French claimed to be the original inventors of the screw propeller, and few would dispute with them the honour on this point—though they also claimed the steam-engine, which was due to the English. The latter have referred to a French paper detailing the performances of the French war steamer *Napoleon*, which were certainly satisfactory, and next noticed a number of instances in which the screw had been employed, even from the year 1699. It was also tried by different parties in 1743 and 1765. In 1792 the *Doucester* transport, which had been recaptured, was worked into harbour at Malta at the rate of one and a half miles per hour, by eight men at a spell. She went seven leagues with a screw, and the parties seemed to have contemplated every kind of propeller since patented by others. In 1823 the screw was applied to a vessel in the Thames. In 1825 a patent was taken out for a screw by Mr. Charles Cunnewell. In 1822 M. Sauvage also applied it. In the same year, Mr. Woodcroft of Manchester took out his patent, in 1828 Mr. Smith did, and in 1830 Ericsson also obtained one. Cunnewell's and Smith's were much alike. Mr. Grantham then explained the principle of the screw (in inclined plane), and its advantages over the paddle-wheel, assuming for argument's sake that, simply as a propeller, there was no preference to be given to either. He referred to cross sections of two vessels of the same dimensions, one with the paddles and the other with the screw; also to longitudinal sections of the same. By pointing to these, he clearly showed the several advantages of screw vessels. There were several kinds of screw propellers, but the principle was the same in all—an inclined plane turned round a spindle or cylinder. (This he showed by wrapping a piece of paper, in the form of a right angled triangle, round a ruler; and the hypotenuse, or slanting edge of the paper, described the worm of the screw, which might be made of any pitch). And if a screw were made to revolve in a solid, by giving it one revolution, it would move forward or backward a distance equal to the pitch. There might be several threads in the same screw, but although this constituted a difference in form, the principle remained unaltered. Mr. Smith's first experiments were made with a single thread, or inclined wedge round an axis, making an entire revolution, and presenting to the eye, when looking in the direction of the axis, the form of a complete circle. Ericsson's and others consisted of a short portion of the screw, with many threads or inclines, in some cases appearing to the eye when placed in the direction of the axis, as a complete circle. (He here described the number of blades on the screw, and how they were formed). Woodcroft (who obtained his patent in 1823) adopted a slightly different system. Instead of the thread being uniform, and the incline the same at all points, he proposed an increasing pitch at the after end. His object would be understood by considering a fish's tail, more particularly that of the eel (in a drawing of which, as it were to me, he pointed). In the experiments made by its body and tail, they each continued to increase; and, consequently, the rapidity with which it struck the water increased also, and compensated for the loss of effect occasioned by the tail by the motion given to the water by the body. In like manner, by giving this constantly increasing angle to the screw, the same result would follow. This he (Mr. Grantham) considered to be a very beautiful modification of the original screw propeller. The principle did not escape the attention of others; and it was to be regretted that it had not been tried earlier and made known. He had alluded to the plan of Masson, Smith, Ericsson, and Woodcroft, to the first two as being best known, and because he believed the award of superiority, was by almost unanimous consent given to it. Mr. Smith was the originator of a company that built the *Athenaeum*—a vessel that circumnavigated England, and performed other long voyages. She first drew public attention to the subject. Great credit was due to that spirited company, and to Mr. Smith for these experiments, which were conducted on a liberal scale; but this was not the first vessel that had been propelled by a screw. Ericsson had previously done much, and displayed great originality of thought. The form of his propeller, although not the subject of this patent, had never yet been published. And it required only the imagined pitch to make it the screw solution you mentioned. He (the lecturer) was influenced by this opinion, when recently called upon to construct the small vessel called the *Liberator* Rover, which had been at work on the Mersey. He had taken care not to infringe any patent on the screw he adopted, and was surprised to find, on looking over the list, that these valuable prior rights had been overlooked. Several experiments had been made by Masson, Bennett, Chantier, and Grigny, at Boulogne, under the superintendence of the latter, upon various forms of screw in the Archimedes. In these same various facts were observed, and it was then suggested that it was possible to propel a vessel faster by the screw, than the screw itself would have gone, had it worked in a solid medium. He at first suspected that there was an error in the calculations, but subsequent observations induced him to believe, it was possible to obtain such a result, and that all vessels having the screw in the dead wood or rear, have a tendency to go faster than the theoretical calculations would lead us to expect—though if this tendency were increased, it would be at a loss of power. He accounted for it by the manner in which water left the vacuum left as the vessel passed onward. A similar operation might be observed in watching the solid formed by the pin of a bridge, in which case the body was stationary and the water passed, but these relative positions were the same in both. The conclusion, therefore, was, that through the relative effect between the screw and the vessel, appeared to be favourable, not that being obtained of a good number of screws, such a small weight acts along distant in the form of the vessel, and was, therefore, an good indication, and that the screw efficiency would be increased, when the speed of the screw was from one-fifth to one-twentieth part greater than that of the vessel. The lecturer then noticed some of the most remarkable screw vessels that yet appeared, and the forms of the propellers employed, and mentioned the difficulties that opposed the general introduction of the screw, and showed that none of the objections to it were genuine. He showed by diagrams of two vessels of equal size, that when paddle-wheel vessels could not move faster than the engine-motor, on the plane of the former deck, as the engine, etc., were to the deck above, hence might be introduced to move vessels at their point, and save greatly strengthening the vessel when the most wanted it, but admitting of a wider range of motion at reduced force and cost, with little or no reciprocation—and when introducing reciprocation took place, in the course of which the ship was still, and reciprocating motion to the propeller-propelled, on the supposed lateral pressure of the screw.

Advertisement: We are informed, that W. P. Ward, Esq., of Russell Colliery, Burslem, Macclesfield and Matlock (of Tredegar Colliery), and Messrs. Child and Sons of Cheshire Colliery, Tiverton, have arranged their colliery wagons to fit a dry-dock or canal.—Chester Chronicle.

ORIGINAL CORRESPONDENCE.

GEOLICAL PHENOMENON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—I am led to presume that geology, practically illustrated, will not degrade the columns of your Journal, circulated, as it is, in the mining districts; those of your readers engaged in mining operations would, probably, enter into the subject, and afford information, both amusing and instructive—disregarding all illusory notions which may be entertained as to primary or secondary formations, so as to avoid controversy, with its abusive and contentious language—bearing their subjects on natural causes and effects, evidently demonstrative of that Supreme Power "which spoke, and it was done—which commanded, and it stood fast." If geology may be considered a science, it cannot be profitably pursued without theory and practical observation; and as one practical idea goes further than fifty theoretical, to where should we turn, with a view of obtaining practical information? Possessing such a scanty knowledge of geology as I do, my object is to elicit information by the few remarks I shall make, upon what I consider to be a geological phenomenon—I mean the intervention of up or down throw "faults," or "dislocations," which occur in part of an iron mine with which I am connected, and shown by the annexed diagram. A, a shaft, sunk to a mine eighty-three fathoms deep; B, the main roadways to the face of the workings; C, face of workings; D, a cross-heading driven before the workings, towards the downthrow fault, in which heading the two working veins of mine, now extending round the whole of the workings, about two feet apart, suddenly throw out, without any alteration in the mine ground or adjoining strata—no rise or depression, the measures keeping their regular inclination, and one vein only, in no way similar to the other, takes its place in the centre, between the other two; this was unforeseen and unexpected: the two veins were seven inches in thickness, the single vein not more than three—reducing the value of that part of the mine more than one-half. The extent of the workings from fault to fault is 200 yards.

Aberystwyth, Dec. 15.

A SOUTH WALES COLLIERY.

We are obliged to our correspondent for directing attention to an interesting subject as that on which his letter treats, and hope that it may be considered as the first of a series, to be followed up by other valued correspondents, whose good intentions we appreciate, but whose duties preclude them from devoting time to correspondence; yet we trust that they will endeavour to find a few moments to devote to a subject, the discussion on which will tend to elicit, while it furnishes much valuable information.]

MR. MALLETT ON WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—A paragraph appeared in your Journal of the 11th of November last (stated to be copied from the *Journal of the Franklin Institute*), which demands that I should beg to be permitted to trespass, in a few words, upon your columns in reply. Had the writer (who appears to be an American, and possessed of the usual share of conceit as to whatever is done at his side of the Atlantic) examined my paper on water-wheels at length, in place of an abstract, he would have seen, that no pretension is set up by me to be the originator of the "circular conduit" applied to overshot wheels—or even the first to determine the value of the application. The primary object of my researches was, to determine certain questions which (as far as I am informed) the Franklin Institute did not determine or decide; and the experiments made with respect to the use of the circular conduit, or "close breast," as the writer calls it, applied to the lower quadrant of overshot wheels, had special reference to the relations of my principal object, while the valuation of power was only a collateral conclusion. It is corroborative, however, to find how very close my results on this point come to those given by the Franklin Institute, although I did not "insignificant models;" and it is worthy of observation, that the Franklin Institute has added nothing important to our knowledge beyond what the experiments of our great Newton, on his "insignificant models," gave long ago. From well made and comparatively large models better results can generally be got, when the differences of conditions are properly attended to and estimated, than from observations on the great scale.

I do not wish to be understood as depreciating the American experiments, which are really valuable, and made with great devotion of time and expense—but they neither discovered everything relating to water-wheels, nor set aside Newton's and many others' results. My present object, however, is only to request, that, by your insertion of these lines in the *Mining Journal*, you will do me the justice thus to contradict the heading to your quotation, in which you parade, in large letters, "Mr. Mallett's Close Breast for an Overshot Wheel Not New;" you are yourself the first person who has called the close breast "Mr. Mallett's," and Mr. Mallett himself never claimed it, either as new or for himself in any form—on the contrary, my paper alludes to it distinctly as an old invention.

As to whether my researches on water-wheels are valuable or not, I am content to rest upon the opinions of some of the most distinguished of my professional brethren, as expressed in my having been honoured with the premium of the Institution of Civil Engineers, for the communication describing them to that body.

RICHARD MALLETT, Mem. Inst. C.E.

Dublin, Dec. 15.

Our correspondent is wrong in attributing to us the designation of which he complains.—The article, including the heading, is a literal transcript from the *Journal of the Franklin Institute* for September, 1841, and there are we exempt from the charge. We believe all who know Mr. Mallett, either personally or otherwise, will admit that the high reputation he has gained is consequent alone on his acquisitions. His valuable communications forwarded to the British Association for the Advancement of Science, as well as to numerous works, and his practical experience, are sufficient in themselves to have rendered his present communication necessary. We are well pleased, however, to find him again as one of our correspondents, and shall gladly avail ourselves of any contributions which his leisure may enable him to afford for insertion in our columns.]

M. A. RIGG'S ALLEGED INVENTION FOR "DETERMINING THE VELOCITY OF THE PISTON OF A STEAM-ENGINE AT DIFFERENT PARTS OF THE STROKE" NOT NEW.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—In the *Practical Mechanic and Engineer's Magazine*, published in Glasgow, the 16th of this month, I perceive, at page 104, that credit has been given by Mr. J. Taylor, at the late meeting of the British Association, held at Cork, to a Mr. A. Rigg (formerly a working engineer in Cornwall), for the invention of a mode of determining the velocity of the piston of a steam-engine at different parts of the stroke. Now, Sir, as the description given coincides in every way with a method adopted by me as far back as February, 1819, and a model of which was submitted to Joseph Parker, Esq., C.E., in June, 1821, I allow myself to think the priority of invention belongs to me. If Mr. A. Rigg, however, has evidence of his having invented it previous to the date given by me, I shall be happy at once to concede the point. The model I refer to is submitted to Mr. Parker is still in that gentleman's possession.

London, Dec. 21.

JAMES A. RIGG, Esq., C.E.

MINERAL RESOURCES OF IRELAND.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—Having seen, in your interesting *Journal* of the 10th inst., some remarks on the Diarmuid mine (with which I am well acquainted), I beg, through the medium of your Journal, to offer an observation or two on the construction in which Diarmuid is situated—which I consider and believe to see that I am acquainted with. The shaft to which I would direct attention is from Diarmuid Castle, west, to the Mine-head, and from Diarmuid, south, to Diarmuid Beg, which includes a distance of twelve miles in length, and about six miles wide, which I have found, on personal inspection, to be a vast number of strong, dampish, east and west hills. I would beg to state, that the construction can be strongly recommended for carrying on mining operations with the greatest advantage, and to almost no cost.

Bishopsgate, Dec. 16.

A. PHARAOH, M.A.C.

We insert the letter of our correspondent, being anxious to place all facts connected with the mineral resources of Ireland prominently before the public. — "A Practical Miner" would, however, make his communication more complete and useful, by relating his practical details of operations in the diarmuid with which he says he is acquainted, and which would, doubtless, be more forcibly attracting attention than the mere general references contained in the above.]

MR. RYAN'S SYSTEM OF VENTILATION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—In consequence of the letter signed "Minerist," in your Number for the 8th instant, I have written to Mr. James Ryan, and trust the letter will find him, and duly elicit a satisfactory rejoinder; and I think I may safely say, Mr. Ryan's silence entirely proceeds from his neither having seen or heard of the observations which have been made on his plan. His system is sufficiently notorious, for it has already been carried into practical effect in some of the Staffordshire and other collieries, and has been fully described in a pamphlet eliminating its details; he can, therefore, have no possible suscepable motive for concealment. As far as my own opinion may extend, it is entirely in favour of Mr. Ryan's system of ventilation, at present, however, I would rather leave a descriptive account of the system in abeyance, in case Mr. Ryan should find leisure to speak for himself. I fear, however, it must be confessed, that, from motives of unworthy jealousy—or, it may be, from some other unexplained cause, his plan and proposals have met with obstacles and opposition, in the counties of Northumberland and Durham, too formidable for a solitary individual to surmount; and from none more so than the late Mr. John Buddle—"De mortuis nil nisi rectum." Clashing and contending interests are terrible opponents—and, what is one, however bold the front, and strong in the panoply of truth, against the many, when set in hostile array? I will frankly confess to you, that I see, under present circumstances, no prospect of amelioration for the miners—certainly, no change will originate with the proprietors of coal-mines. My Lord Londonderry, in his memorable pamphlet, so severely censured by the Times, endeavoured, by a bold inversion of ratiocination, to make it appear, that the *entire* portion was superior to the immortal mind of man, and should be the object of emulation; I fear, however, that his lordship would indignantly spurn the inference which flows from this startling doctrine—namely, that the heart of my Lord Londonderry is better than his brain!—It is written on the other hand, "That the soul he without knowledge is not good." Now, Sir, let me seriously ask, what are we to expect from a source whence such sentiments emanate?—and, also, when I consider the aristocratic bearing of our legislative Houses of Assembly, and their obstinate adherence to what they, in their "collective wisdom," are pleased to designate "vested rights," I see no prospect of relief. The *one pupil* must be expunged—and this mighty liver is the only power that can expunge supercilious and hasty despots" to do obeisance to the philanthropic maxim—"Fame nihil esse alienum puto." What, Sir, has the Parliamentary inquiry instituted in 1835, done?—an echo retorts, "What?" What has Lord Ashby's human exertions achieved?—Not a title of the good contemplated. We want ventilation, and a scientific system of working coal-mines—not safety-lamps, as I may above have written.

It may suffice, now, merely to state, in reference to Mr. Ryan's system of ventilation, that the evidence of Messrs. Buddle, Smith, and Forester entirely corroborate the existence of the phenomena which supplied his data. In that admirable digest, the *Report of the South Shields Committee appointed to Investigate the Causes of Accidents in Coal Mines* (filed, 1843), we have an honest, honourable, and faithful tribute to the merits of Mr. Ryan's plan. The award of the gold medal and 100 guineas, by the Society of Arts, in 1816, to Mr. Ryan, was founded on the ample testimony, by practical men, of its triumphant success; and Mr. Bonney, the distinguished director of the Belgian mines, lauds the "admirable contrivance" of the system propounded by Mr. Ryan. What further evidence do we require of the excellence of his plan?—I may, in a future communication, trouble you with a commentary on his system, which I believe to be rooted in nature, and founded on recognised statistical laws.

December 18.

(J. MURRAY.)

The subject of ventilation of mines is so important in itself, that all communications treating on one system or another, whether "for" or "against," are highly valuable, and will, doubtless, be equally appreciated by our readers as by ourselves. If a system be not perfect, then the attention drawn to the objectionable portions of it, will benefit the scientific or practical men in elucidating some new plan to remedy the defect. We are well aware that Mr. Ryan has had much to contend with. Interest and prejudice have gone hand in hand; and while we are ready to admit the value and worth of the man, and with Mr. Murray repeat *de mortuis nil nisi rectum*, yet we believe it will be too generally admitted, that prejudice did exist, and that in no slight degree, in the quarter referred to. The *Report of the South Shields Committee* is now before us, and the testimony adduced is highly honourable to Mr. Ryan, as it is to the members of which such committee was composed. The question may be considered as again coming under attention—with renewed and increased claims, the fatal accidents arising from want of ventilation, the proposed application to the Government and legislative body on subject of accidents in mines, all tend to raise the question as not only one of interest, but importance. Mr. Matthias Dunn, to whom we were indebted for several valuable articles on the subject, will, we doubt not, avail himself of the opportunity which thus presents itself, of again expressing his opinions, and tendering that counsel and advice, for which his long experience as well fit him.

December 19.

COMBINATION AMONG OPERATIVE MINERS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—Permit me, through the medium of your valuable paper, to call the attention of the mining interest to the extensive combination now existing amongst the operatives employed in all mineral pursuits. One of their papers, which is circulated privately, I enclose, for the information of those who may not have seen it; and, I hope, it may be the means of calling the attention of the trade generally to the subject; and, I trust, that the same degree of unanimity will be found amongst masters as exist among their workmen; and that the proprietors and workers of mines will firmly put down this union, by refusing generally to employ any man who does not sign a declaration that he belongs to no union. Attention on the part of the employers in resisting any dictation from their men, together with an earnest endeavour to remedy any real grounds of complaint, will speedily check what otherwise will be one of the most extensive, injurious, and dictatorial unions which has ever been formed. Trusting that this subject may be taken up by other heads than mine, I remain, Sir,

Asper-Uware.

Some observations on this communication will be found in another column. The paper referred to can be inspected at our office.]

BEALE'S ROTARY STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—I wish Mr. Beale should feel obliged to your correspondent, "Expander," for drawing his attention, in the manner he has done, to his rotary-engine, for, I confess, that the same idea had struck me that had occurred to him, and, I doubt not, to many other persons also. There is no arguing, they say, against facts, and for it from me to question the truth of Mr. Beale's assertions; but I assert above, that it has always been held by mechanists, that, where friction exists, there cannot fail to be some waste of the existing surfaces. Now, that there are such rubbing parts is beyond all doubt. I may not have a quite clear conception of the structure of this machine, yet, I should say, the rubbers, although they may revolve, from contact with the inner rim of the cylinder, must rub hard against the four jaws of their cones, and, certainly, these ends must be pressed by the sides of the box. The revolving cylinder, which I presume, is fastened on the side, must also rub on one of the sides, if not both—the construction of the case must determine which. Under all the circumstances, and the best construction I am enabled to give the master, even after what Mr. Beale has written, I am still unable to draw my mind to a conclusion which best occurred to it; that this engine must be liable to a considerable amount of friction, and to great leakage, in comparison with its size. I dismiss all intention of trifling, or of expressing a doubt of Mr. Beale's statements, but I should have been glad of a little more reasoning in conjunction with his facts. Yes, Mr. Editor, speak of the better selected to this engine, and which is also patented, as possessing great merit; your description of it is too meagre to allow of my clearly comprehending it. If Mr. Beale would be so obliging as to describe it, I am persuaded he would gratify many of your readers, as well as

ourselves.

[Communicate, Dec. 19.]

We doubt not but Mr. Beale will afford the desired information. The subject is one of great interest, and we are well pleased to find it mentioned by the communication of our correspondent, in which we find, at all times, ready description.]

ROTARY STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—I find every 10 years in my previous existence, there should have been reported to Mr. Beale. I had an idea of dispensing my invention to the best and most expert legal agent, a firm of solicitors, for protection, rather than inventors, its reporters. As I have done nothing, I have no claim to any reward.

Asper-Uware.

fear the wear and tear to be excessive; Mr. Davis's answer, however, of the performance and keep of his engine is truly extraordinary, and warrants the further elucidation of the plan. Being anxious that the steam-engine should necessarily merge into a primary rotary motion (which, if properly accomplished, I am convinced will be caused the present beam and crank engine), I take deep interest in any plan which may be advanced for the purpose. I perceive, Sir, from another paragraph in your esteemed Journal, this week, a rotary engine, of the Earl of Darnall's construction, is about being applied to a steam boiler. I have no doubt it would make a feature on many of your readers if an explanatory diagram of the same were furnished in an early impression.—Dec. 16.

Hargrave.
We shall endeavour to comply with the wish of "Expert"—and should, in the mean time, feel obliged if any of our correspondents would furnish us with some particulars of the engine alluded to.

CALCAREOUS DEPOSITS, &c.

To THE EDITOR OF THE MINING JOURNAL.

Sir,—I have given you an example of the deposit of sulphate of lime, in the case of the editor of *Her*, illustrating a fact universally recognized in alchemy, that a solution, of course, more soluble in a greater than in a more diluted quantity of water, and that, when the quantity is reduced, its extent of solubility loses or much abridged, the ratio of evaporation of other matter, corresponding with those reductions, will, of course, be precipitated.

In the "Petroliferous Well" at Matlock, as well as similar springs elsewhere, the water, when it "rises into day," comes in the atmosphere a proportionate of its carbonic acid, and, from a soluble carbonate, or super-carbonate, he causes no insoluble non-carbonate—hence, the calcareous deposits on stones, &c., due to the reduction of temperature and evaporation, constitute their shape in the deposit. I quote generally, omitting details. All that I shall say of the other remarks about calcareous is merely this, that, as a practical application of nearly a quarter of a century, it is not very remarkable to suppose that I would form my opinion largely, or draw my conclusions on insufficient grounds. As a direct argument to the gravitational assumption, that elasticity generates the mass, I beg to assert, that there is not a title of evidence that electricity does anything of the kind. The conclusions drawn by that celebrated French philosopher and electrician, M. Biot, from his extensive experimental researches is this—*electricity does not penetrate the best conductors to an appreciable depth*.—Dec. 16.

J. MURRAY.
Time, precipitates its least volatile ingredient, sulphate of lime—which, consequently, forms no incrustation on the twigs, and the water, after several repetitions of the process, becomes eventually remarkably saline. This induces, subsequently, to precipitate the introduction into the steam boiler of twigs of bracken-wood, to neutralize the calcareous deposit, and prevent the incrustation of the boiler, and I have every reason to believe it was successful.

Dec. 16.—

PRIVATE COMPANIES.

To THE EDITOR OF THE MINING JOURNAL.

Sir,—When a journalist protects the interests of a commercial community (by exposing the peculations of a "Talbot," "West Cork," or other scoundrel) against the influence of wealth, and the power of interest, he becomes a commercial creditor, and merits public gratitude. Although the punishment of public offices has been cast upon the characters of public men, it has not had the effect of deterring others from attempting (and, in many cases, successfully) the increase of ruinous facilities, by the gross misappropriations made, and mismanagement of the funds entrusted to their care, accompanied by a violation of the constitution of the company. I am led to make these remarks, from facts which have come to my knowledge relating to a company now on the eve of dissolution. As many commercial men have, providentially, escaped the vortex of ruin, I conceive it is duty to the public to expose the ignoble and attractive system pursued by projectors, and which, if generally known, might not be a caution. Should, Sir, the case to which I now particularly allude not undergo a public magisterial investigation in the course of a few days, I will furnish you with a statement of the proceedings, documents, and other evidence, with the names of the connecting parties.—Buckingham, Dec. 16.

A SCOPPER.

We insert the letter of our correspondent, who has given us his name in confidence. The issues are too general; and, although they may apply to the particular company to which he makes reference, we cannot admit their bearing as regards numerous companies. The advantages to the public are well known and appreciated, as being the means of carrying out measures beyond the power of individual enterprise or capital. We are assured that the facts relating to this particular case shall come before the public, or we should have been disposed to report our correspondent's communication.]

LIABILITY OF DIRECTORS AND SHAREHOLDERS.

To THE EDITOR OF THE MINING JOURNAL.

Sir,—The question of liability or responsibility under which directors and shareholders labour, as demonstrated in your last week's Number, if I mistake not, led to the formation of the numerous tiny companies some eight or ten years since—most of which are now extinct, or have so altered their constitution, as to be, in a great measure, except from the causes which you, among others, applied to them; but the results of two cases in your last week's Number raises the question in the minds of many, and myself of the possible, what cause is sufficient to be pursued—what remedial measure is to be adopted?—and whence it would, indeed, appear, that to be the director or shareholder in a company, whether registered or not, is to subject the party to all the consequences attendant on the verdict of a jury, which may be in total ruin, although possessed of thousands, whilst his labour in the company may not have extended beyond the birth of an "adventure," a hundred risk of a few pounds. One of the serious evils which appears to me to possess greatest itself, is the liability of a party to relieve himself from a responsibility once incurred, as in the instance of the case reported in your last Number; for we therein find, that, after having parted with his interest, he is charged with subsequent debts incurred, and has to pay the penalty, accompanied by law suits—the latter on slight considerations in itself.

Now, Sir, it appears to me, that the only course open is the introduction of a bill on the part of Government, having for its object the registry of all names in a public office. I wish no jobbing, and I feel assured that the cost attending on a number of these names would be insignificant with the value and importance of the service. All parties would then be enabled, on paying a trifling fee, which would be applied to the charges of the office, to acquire a knowledge of the interest held by the subscriber of the name, as well as being acquainted with the nature or position of their co-partners, and thus enabled to choose for themselves whether they like their associates or not. I think, Sir, were you to put forward some measure of this kind, although it might not meet with the sanction of the generality of jobbers, bankers, and agents, its beneficial object would be apparent, that it would meet the support of every upright man, who would "do unto his neighbour as he would have done unto him." Helping you not allowing the subject to sleep, while I shall be every ready to afford you my humble aid, I am, &c.

Half of Chambers, Dec. 16.

[We consent, in a great measure, with the views of "Mercurius," and feel convinced that an alteration must be made as regards the laws affecting joint stock companies. If we mistake not, a register is kept at Somerset House, or some Government office, of the names of shareholders in joint stock banks; and we desire to see on record why the law, which applies to one description of joint stock property, should not equally applicable to another. There is much reasonable jealousy, we know, existing as to the interference of Government, or a power being vested in them, having for its object a control over private corporations; but with the law as it now stands, and subjected, as the public are, to be made the dogs of projectors and schemers of schemes, it is not sufficiently stringent, while, in others, it is equally as oppressive. We may assure our correspondent the subject shall not be lost sight of.]

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SCIENCE v. PRACTICE—THE DODGE v. THE PICK.

To THE EDITOR OF THE MINING JOURNAL.

Sir,—In your last Number, I compare an "old adage," "I wish he could be taught, somehow, to know his 'relative position,'" and project mine; an excellent maxim directed against miners and miners, and all who affect positions in the ground. I never venture, however, that in one of the former instances he did, or might necessarily, after an educated reasoning, that well informed individuals believed him to be out of the most favourable position who did not get to work. I have seen only to project again his Projected and Strategic combination of Mr. Ryan's system of taxation, of which he has a short account in the "new in the news."—Observe that we all should possess so valuable a subject of which they have nothing. It is pretty clear the "young economists" was deceived, at least, of the details which formed subjects of his adage.]

SCIENCE v. PRACTICE—THE DODGE v. THE PICK.

To THE EDITOR OF THE MINING JOURNAL.

Sir,—The letter of Mr. T. W. is in last week's Journal, in relation to mine of the old adage, goes on to state the new position I "misunderstood" as to the value of mines, he states—"The Mining Engine is the best solution; there must be a result that every mine has either an economic value or none; and that can only be tested with the pick, which working, however good, can never get to work." By this we join issue, Sir, "mine further." Sir, "T. W." will be the pick master, in the best "misunderstanding" of mine, of mine. His "best proof" of his position—mentioning Taxation and Capitalization, show that one authority can't be tested with the pick, which working, however good, can never get to work." By this we join issue, Sir, "mine further." Sir, "T. W." will be the pick master, in the best "misunderstanding" of mine, of mine. 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